Substances, Compounds & Mixtures- Guided Notes

Substances

* \_\_\_\_\_\_\_\_\_\_\_\_\_ that has the same composition and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ throughout is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* When \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_elements \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, other substances are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Contains only \_\_\_\_\_\_\_\_\_\_\_\_ particle
* Can \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in 3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of matter
* Can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is a Pure Substance?

* A \_\_\_\_\_\_\_\_\_\_\_ substance is a \_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_ that includes both \_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_substances \_\_\_\_\_\_\_\_\_\_\_\_\_ be \_\_\_\_\_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_\_\_\_\_\_\_\_ means such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Compounds

* A **\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is a substance whose \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ unit is made up of \_\_\_\_\_\_\_\_\_\_ of more than one pure element \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ together.
* Are made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and molecules are the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ particle of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Compounds often have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that are different from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ that make them up.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ made up of \_\_\_\_\_\_\_\_\_\_\_or more atoms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonded together
* Examples: Water, salt, sugar

Compounds Have Formulas

* H2O is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ formula for water, and H2O2 is the formula for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tells you which \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ make up a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as well as how many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of each element are present.

How to read a formula

H2O

* This is a \_\_\_\_\_\_\_\_\_\_\_\_\_. It tells us how many \_\_\_\_\_\_\_\_\_\_\_\_ of that \_\_\_\_\_\_\_\_\_\_\_\_ exist in one \_\_\_\_\_\_\_\_\_\_\_ of that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is made of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hydrogen \_\_\_\_\_\_\_\_\_\_ and 1 \_\_\_\_\_\_\_\_\_\_\_\_ atom.
* No \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used when only \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atom of an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is present.

Compound Examples:

* Sugar Carbon, Hydrogen, Oxygen

(C12 H22 O12)

* Written Equation: 12 Carbon atoms + 22 Hydrogen atoms + 12 Oxygen atoms = 1 molecule of sugar

YOU WRITE THE EQUATION

* Water Hydrogen, Oxygen 1.

(H2 O)

* Salt Sodium, Chlorine 2.

(Na Cl)

* Hydrogen Peroxide Hydrogen, Oxygen 3.

(H2  O2)

Compound Review

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ compound has the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ elements and the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ all of the time
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ combined
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ properties are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* They \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_physically
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ properties such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ point or \_\_\_\_\_\_\_\_\_\_\_\_ point of \_\_\_\_\_\_\_\_\_\_\_\_substances \_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_ change

Mixtures

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a combination of two or more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ where there is **\_\_\_\_\_\_\_** chemical combination or reaction.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ combine \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in no specific proportions.   
  They just \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Solids, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and gases can be combined to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a mixture.

Mixture Types

* Mixtures may be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1) Homogeneous Mixtures:

* The prefix: "homo"- indicates the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Have the same \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ appearance and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ throughout
* EX. A pile of pennies, iced tea with sugar (sugar has dissolved)

Solutions:

* SOLUTIONS are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mixtures
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a mixture of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or more substances.
* At least \_\_\_\_\_\_\_\_\_\_\_\_\_\_ substances must be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in order to have a solution

Two Parts:

* The substance in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ amount and the one that **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is called the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* The substance in the larger \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is called the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**- it does the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* IN \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ common instances \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples:

* Salt water
* Clean Air
* Vinegar

1. Heterogeneous Mixtures:

* The prefix: "hetero"- indicates \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* A heterogeneous \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ consists of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_different substances or \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or more parts \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples:

* Pizza
* A pile of coins
* Chex Mix

How Can We Change Matter in to New Substances?

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (also known as a chemical change) is a change in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or substances that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a totally \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ substance
  + Ex: 2H2(g) + O2(g) 🡪 2H2O(l)
  + Notice that the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (the \_\_\_\_\_\_\_\_\_\_\_\_\_ you \_\_\_\_\_\_\_\_\_\_ with) combine to form a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ substance (the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

**How** Do I Know If A Chemical Reaction Has Occurred?

* There are 5 indicators of a chemical reaction
  1. Evolution of a \_\_\_\_\_\_\_\_\_\_\_\_
  2. Evolution of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  3. Evolution of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ change
  5. Evolution of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Precipitate: an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ substance that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as a result of a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ reaction

**Why** Do Chemical Reactions Occur?

* Chemical reactions \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to produce a more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ product than the existing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Structure of a Chemical Equation

* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_equation tells you the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_you \_\_\_\_\_\_\_\_\_\_\_\_\_ with in a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ you get at the \_\_\_\_\_\_\_\_\_\_\_\_\_
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* When the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, you have \_\_\_\_\_\_\_\_\_\_\_\_\_\_ substances call the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can \_\_\_\_\_\_\_\_\_\_\_\_\_
* Reactant + Reactant Product + Product
  1. Reactant + Reactant yields Product

NH3 + HClNH4Cl

* Ammonia + Hydrogen Chloride yields Ammonium Chloride
* Reactant Product + Product

1. Reactant yields Product + Product

CaCO3 CaO + CO2

* Calcium Carbonate (heated Limestone @ 1,517oF) yields Calcium Oxide + Carbon Dioxide

Where Does The Matter Go?

* It is important to understand that when matter undergoes a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ reaction (ie a chemical change) it does not \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  + The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and form new bonds, but no matter is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* This is called the Law of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Compounds vs Mixtures

COMPOUNDS MIXTURES

Graphic Organizer